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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,012	03/15/2004	Philip J. Lingle	3691.663	6810

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ARLINGTON, VA 22203

EXAMINER
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BLACKWELL, GWENDOLYN A

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/800,012

Applicant(s)

LINGLE ET AL.

Examiner

Gwendolyn Blackwell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,6-15,19-24,32 and 33 is/are pending in the application.
- 4a) Of the above claim(s)    is/are withdrawn from consideration.
- 5) ☐ Claim(s)    is/are allowed.
- 6) ☒ Claim(s) 1,6-15,19-24,32 and 33 is/are rejected.
- 7) ☐ Claim(s)    is/are objected to.
- 8) ☐ Claim(s)    are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No.   .
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>  </u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                           | 5) <input type="checkbox"/> Notice of Informal Patent Application                           |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>  </u> | 6) <input type="checkbox"/> Other: <u>  </u>  |

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### DETAILED ACTION

1. Claims 1, 6-15, 19-24, and 32-33 are pending and examined on the merits.
2. The limitations regarding the low sheet resistance in combination with the visible transmission as set forth in independent claims 1 and 15 will receive the benefit of the March 15, 2004 filing date.

### *Continued Examination Under 37 CFR 1.114*

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 24, 2006 has been entered.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 6-15, 19-24, and 32-33 are rejected 35 U.S.C. 103(a) over United States Patent Application Publication no. 2004/0005467, Neuman et al.

*Regarding claims 1, 15, and 32-33*

Neuman et al disclose a heat treatable coated article with zinc oxide inclusive contact layers. The heat treated coated article can be part of windows or laminated windshields, (page 3, section 0027). The multilayered coating is comprised of:

silicon nitride/1<sup>st</sup> lower contact layer/IR reflecting layer/1<sup>st</sup> upper contact layer/dielectric layer/silicon nitride/2<sup>nd</sup> lower contact layer/IR reflecting layer/2<sup>nd</sup> upper contact layer/dielectric layer/protective dielectric layer

wherein the lower contact layer is a zinc oxide inclusive layer, the IR reflecting layer is comprised of silver, and the upper contact layer is an oxide of NiCr, (page 4, sections 0034-0038). Monolithically the sheet resistance after heat treatment is less than or equal to 2.5 ohms/square, which would encompass 2.1, with a corresponding visible transmission of 85% which is calculated from  $T_{vis}/R_s=34$ , (page 5, Table 3). The dielectric layer above the 2<sup>nd</sup> upper contact layer can be tin oxide with a layer of silicon nitride formed thereon, (page 4, section 0042). Table 1 demonstrates that the preferred range for the thickness of the tin oxide and silicon nitride layer range from 0-750 Å each, (page 5, section 0045). Post heat treatment the coated substrate has a haze value of less than or equal to 0.35, which would encompass 3.0, (page 6, Table 6). Neuman et al does not specifically disclose the sheet resistance, the non-use

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of titanium oxide, or that upper tin oxide layer is significantly thicker than the outer silicon nitride layer.

Absent a showing of criticality with respect to thickness (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the thickness of the layers through routine experimentation in order to achieve a coated article having a high  $T_{vis}/R_s$ , (page 3, section 0030). It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

The limitation of present claims 1 and 15 require that the sheet resistance is less than or equal to 2.1 which falls within the range of less than or equal to 2.5 set forth above. In the alternative, it would have been within the skill of one in the art at the time of invention to optimize the sheet resistance and haze value of the coated article in order to increase the visible transmission to sheet resistance ratio through the use of Si-rich silicon nitride inclusive layer used in combination with a zinc oxide inclusive layer to lower the sheet resistance. By increasing the ratio the solar performance and visible transmission of the coated article are increased, (page 3, sections 0026 and 0029-0031).

In the alternative, while there are no specific examples without the use of titanium oxide next to the glass substrate, it would have been within the skill of one in the art at the time of invention to leave out the titanium oxide layer as it is considered an optional layer, (page 4, section 0034).

*Regarding claims 6 and 19*

The limitations of present claims 6 and 19 require that the haze value is less than or equal to 0.30 which falls within the range of less than or equal to 0.35 as set forth above. Absent a

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showing of criticality with respect to the haze value (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the haze value through routine experimentation in order to achieve a coated article which has the required optical characteristics, such as a high visible light transmission. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

*Regarding claims 7 and 20*

The silicon nitride layers can be silicon rich and non-stoichiometric represented by  $\text{Si}_x\text{N}_y$  wherein x/y may be from 0.76-1.5, (page 4m section 0040), 7 and 20.

*Regarding claims 8-12 and 21*

Tin oxide with an overcoat of silicon nitride is formed over the 2<sup>nd</sup> upper contact layer, (page 4, section 0042), claim 8. Tin oxide can also be located between the 1<sup>st</sup> IR reflecting layer and the second layer comprising silicon nitride, (page 4, section 0041), claim 9. An oxide of Ni and/or Cr acts as the 1<sup>st</sup> and 2<sup>nd</sup> upper contact layers, (page 4, section 0037), claim 10. The silicon and zinc targets are doped with about 10% aluminum, which results in silicon nitride inclusive and zinc oxide inclusive layers containing aluminum, (page 7, section 0064), claims 11-12. The IR reflecting layers are formed on the lower contact layers which are comprised of zinc oxide, (page 4, sections 0034 and 0038), claim 21.

*Regarding claims 13 and 14*

The layer comprised of an oxide of NiCr ranges in thickness from 10-100 angstroms with the second silicon nitride layer is comprised of 50-450 angstroms, (page 5, Table 1, claims 13-14.

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*Regarding claims 22-24*

Because Neuman et al disclose that the coated invention can be used with a laminated windshield and that the only type of substrate used with the Neuman et al invention is based on glass, and since it is well known in the art that these particular types of coatings are placed between two substrates when laminated, that laminated windshield disclosed on page 3, section 0027 is considered to be comprised of two glass substrates with the coating of Neuman et al formed therebetween.

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01*. Because the prior art exemplifies the applicant's claimed layer structure, the claimed physical relating to the visible light transmission is present in the prior art of record. Absent an objective showing to the contrary the addition of the claimed physical property to the claim does not provide a patentable distinction over the prior art of record, claims 22-24.

***Response to Arguments***

7. Applicant's arguments and claim amendments, see pages 7-8, filed July 24, 2006, with respect to the Double Patenting rejection and Ebisawa (US 6,472,072) have been fully considered and are persuasive.

8. Applicant's arguments filed July 24, 2006 have been fully considered but they are not persuasive with respect to the rejections made under Neuman.

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9. Applicant contends that the amended layer structure of claims 1 and 15 with regards to the tin oxide layer being significantly thicker than the silicon nitride layer provides unexpected results over the prior art.

This is not persuasive as Applicant is alleging unexpected results with no objective evidence to support such an assertion. Objective evidence which must be factually supported by an appropriate affidavit or declaration to be of probative value includes evidence of unexpected results. See, for example, *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984). In the specification, page 14, section 0039, there is one line which indicates that a coating as now claimed allows the coating to perform better with regard to mottling. However, there is no evidence to support the base line for mottling in the previous coating to demonstrate better performance especially in light of the fact that even with a thicker tin oxide coating the other physical characteristics such as visible light transmittance does not change by an appreciable amount.

10. For the reasons set forth above, the rejection of claims 1, 6-15, 19-24, and 32-33 under Neuman is maintained.

### ***Conclusion***

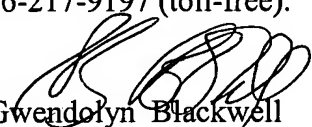
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn Blackwell whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday; 6:30 am - 5:00 pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gwendolyn Blackwell  
Examiner  
Art Unit 1775

gab